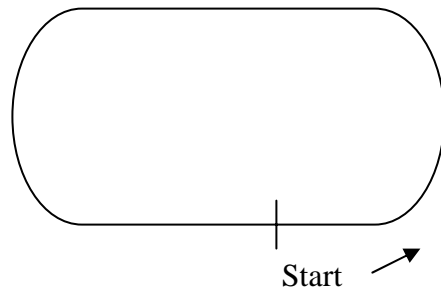


## INDY 500 RACEWAY PROBLEM



A racecar completes one lap at the Indy 500 Raceway. Assume the car starts at rest.

1. Sketch a graph of the car's total distance traveled as a function of time.
2. Sketch a graph of the car's distance to the starting line (as the crow flies) as a function of the total distance traveled.
3. Sketch a graph of the car's distance to the starting line (as the crow flies) as a function of time.
4. One of the above functions can actually be expressed as a composition of the other two. Which one is it and what is the order of the composition?
5. On each of the three graphs, indicate the point that represents the car's maximum distance to the starting line.
6. Approximately where on the raceway are the car's maximum and minimum distances to the starting line?
7. How would your graphs change if the car traveled two laps?